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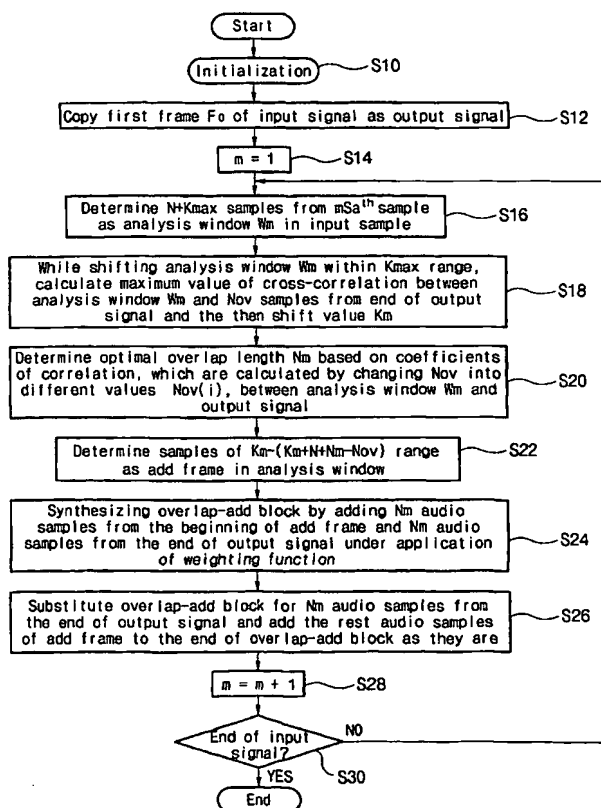
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(54) Title: AUDIO SIGNAL TIME-SCALE MODIFICATION METHOD USING VARIABLE LENGTH SYNTHESIS AND REDUCED CROSS-CORRELATION COMPUTATIONS



(57) Abstract: Disclosed is an audio signal time-scale modification method which utilizes variable length synthesis for the improvement of output audio quality and reduced cross-correlation computations for the reduction of computation loads to a processor. An analysis window consisting of $N+K_{\max}$ audio samples is selected from an input stream of audio samples and is shifted by the predetermined interval along an output stream to find optimal shift K_m , which ensures best cross-correlation between Nov audio samples of the analysis window and last Nov audio samples of the output stream, and a particular value of Nov_f at which a coefficient of correlation between them is larger than a reference value or is the maximum one among a plurality of coefficients of correlation calculated with varying the value of Nov . The audio samples involved in the calculation of cross-correlation are down-selected by the predetermined ratio from Nov audio samples of the analysis window and last Nov audio samples of the output stream, respectively. The analysis window may also be shifted by the plurality of audio samples per one shift. The audio samples ranged $km-(N+K_m+N_m-Nov)^{th}$ in the analysis window is determined as an add frame. The existing last Nov_f audio samples of the output stream are replaced with new Nov_f audio samples obtained by weighting and adding the overlapped parts, i.e., the first Nov_f audio samples of the add frame and the last Nov_f audio samples of the output stream, while remaining part of the add frame is simply appended to the tail of the new Nov_f audio samples in the output stream.